Pacific Seabird Group

BULLETIN

Volume 12 Number 2 1985

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PACIFIC SEABIRD GROUP
BULLETIN

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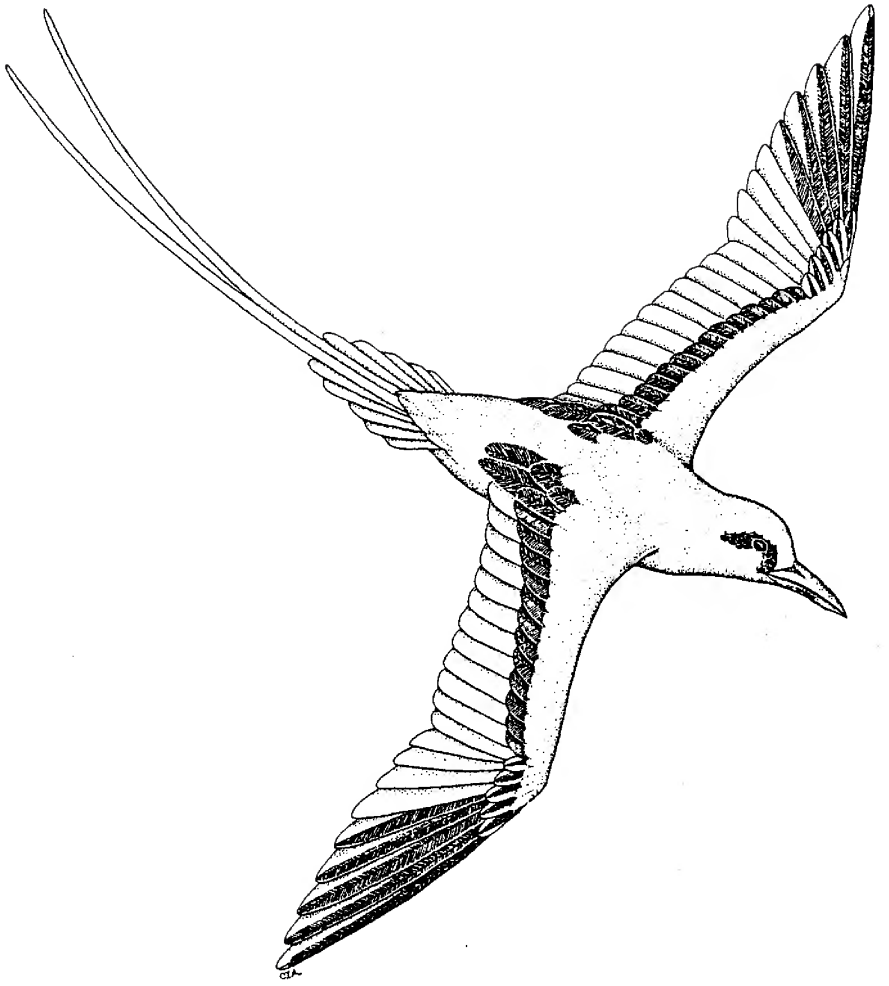


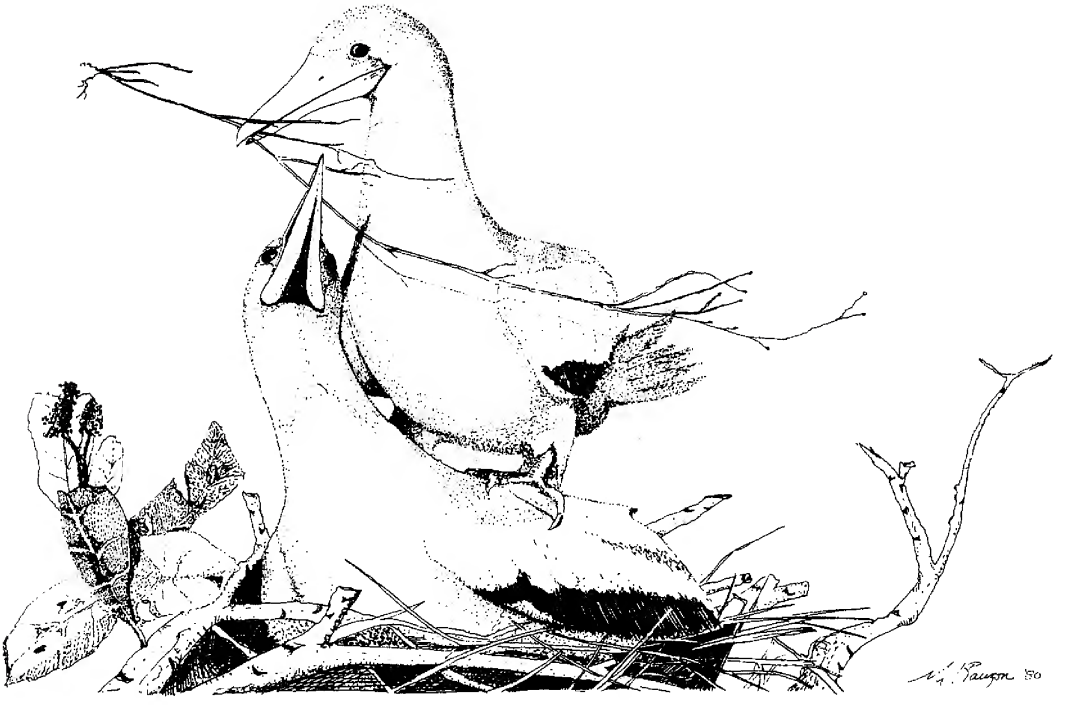
THE EDITOR'S PAGE

It is with some trepidation that I write my first Editor's Page. Joe Strauch has done an impressive job preparing Bulletins and set a hard act to follow. I hope to keep up the level of quality that Joe established. In preparing this first issue, I have been impressed with the enthusiasm and dedication of all the contributors. I hope everyone in the Pacific Seabird Group will keep me informed of research, publication, and news items. After all, the Bulletin has been established primarily as a means of communication among us, and the Bulletin is the result of all our contributions.

There is a move afoot to increase communication with researchers in other parts of the world, especially Latin America. I hope that this will develop, and that future issues will include more about seabird research and news throughout the Pacific and in other areas.

I look forward to working with all of you.

Malcolm C. Coulter



THE CHAIR'S PAGE

A consistent theme of many past PSG Chairperson letters has been: "PSG is *not* going to the dogs." I've only heard that it is from one person so far! Then what if I said: "Yeah, it sure is." So I won't. Actually this is more of a report: everybody on the Executive Council has been busy.

First, the following persons have all agreed to serve in these new or renewed PSG functions:

1. **Seabird/Fisheries Interactions Committee**: Alec MacCall, Chairperson; Bob Boekelheide, Vivian Mendenhall, and Dan Anderson.
2. **PSG Historian** (has it been that long?): George Divoky.
3. **PSG Representative to the ICBP**, to replace Bill Drury: Ralph Schreiber.

Starting as soon as possible, I'd like to solicit and invite discussion on the following proposal (first suggested by R. W. Schreiber): to elect the Chairperson, Chairperson-Elect, Secretary, and Treasurer for two-year terms. Only one problem seems to arise: the Chairperson-Elect (also Program Chairperson) would have to do two programs instead of one. I would suggest that for one of those two years, a volunteer program organizer could be found. I will bring this up at the Executive Council meeting in San Francisco. Any other matters members wish to be discussed at that meeting should be relayed to me or any other member of the Executive Council before November.

I've been to La Paz and the President of UABCS (Univ. Autonoma de Baja California Sur) has offered his university to us. Juan Guzman has been appointed Chairperson of the local committee on arrangements. Some very big advantages include:

1. it's a perfect time for both resident and migratory seabirds, climate will be ideal;
2. the area is diverse and rich (whales, pinnipeds, mangroves, corals, etc.);
3. many hotels of varying prices are available and very cheap, or free housing will be made available to students;
4. field trips will be low cost or free;
5. audiovisual materials, auditoriums, etc. are large and adequate, multilingual facilities are available (all free);
6. hopefully, there will be a lot of Latin American interest in this meeting,and we may get a substantial turnout from nonmembers if we start "advertising:: now.
7. cheap transportation will be available for travel from San Diego to La Paz.

Laura Leschner and I are even thinking about leading a tour down the Baja California peninsula prior to the meeting.

See you in San Francisco.

Daniel W. Anderson

PACIFIC SEABIRD GROUP NEWS

1985 Joint Annual Meeting of the Pacific Seabird Group and the Colonial Waterbird Group

The 1985 Joint Annual Meeting of PSG and CWG will be held 4-8 December in San Francisco. Please note that the hotel has been changed. We will meet at the Holiday Inn-Financial District which is located at 750 Kearny Street, San Francisco, CA 94108 (phone [415] 433-6600). This is at the corner of Washington Street. When the general meeting announcement was mailed, there were a limited number of reservation cards available; some members did not receive reservation cards with the general announcement. In order to make reservations, contact the hotel directly. Please note that the hotel has guaranteed to accept reservations at the reduced rate only until November 20.

The deadline for abstracts for papers and posters is October 1.

PSG Information Brochure

The PSG information brochure, with general information about the Group for prospective members, has been very nicely printed. Copies are presently available from Dan Anderson.

Deadlines for the Next Bulletin

The deadline for all copy for the next issue of the Bulletin is January 15. Regional Representatives who have missed the deadline for this issue are urged to submit a report for the next issue. All information on conservation should be sent to the Chairman of the Conservation Committee (Dr. Kees Vermeer, Inst. Ocean Sci., P. O. Box 6000, Sidney, BC V8L 4B2, Canada) no later than December 15.

PSG is Looking to Expand Membership and Contacts

PSG is trying to expand its membership into countries outside our normal circulation areas. We intend to mail courtesy copies of the PSG Bulletin and membership brochures to individuals or organizations that represent potential new memberships and/or interested seabird workers in areas where our members normally are not found. We also intend to inform other people of our activities by sending courtesy copies of the Bulletin to individuals or organizations who for some reason cannot pay normal dues or subscription fees. We therefore solicit from our membership suggestions and especially names of people who fit these categories, i.e., we are looking for new dues-paying members and new contacts. Please help by contacting our Secretary, Tony DeGange (address on inside back cover).

REGIONAL REPORTS

ALASKA, ED MURPHY

Colony Studies

At most Alaskan colonies that are to be studied in 1985, data were collected initially in the mid-1970's under the auspices of OCSEAP. Some of these colony studies now have been conducted annually, or at least for several years, in the past decade.

Dave Irons (USFWS) is monitoring Black-legged Kittiwake colonies, including examination of attendance patterns with time-lapse cameras, in Prince William Sound. He will also be working on improving census techniques for Marbled Murrelets. In conjunction with Dave's studies, Bay Roberts (UA Fairbanks/USFWS) is continuing her study of parental roles of Black-legged Kittiwakes on Middleton Island and will census and estimate reproductive success of kittiwakes and Pelagic Cormorants; USFWS has collected comparable data there in 6 of the previous 9 years. Dave Nysewander and John Trapp (USFWS) are continuing their monitoring study of seabirds at Chiniak Bay, Kodiak Island and their inland studies of gulls and cormorants at Skilak Lake and Lake Louise. Dave Norton (UA Fairbanks) is studying Mew Gulls near Fairbanks. Scott Hatch (USFWS) will begin a cohort banding study of Northern Fulmars on the Semidi Islands and also will be studying the food habits and bioenergetics of fulmars there in relation to seabird-fisheries interactions. Judy Sherburne (UA Fairbanks) is beginning a 2-year study of intracolony variation in reproductive success of Black-legged Kittiwakes on Round Island in Bristol Bay. Ed Bailey (USFWS) will be monitoring Crested Auklets on Big Koniuji Island. Mike Nishimoto (USFWS) will be monitoring seabird colonies on the Barren Islands (Dee Boersma's [UW Seattle] plots) and at Gull Island; he will also set up plots for long-term monitoring of burrow nesters on St. Lazerea Island. Vern Byrd (USFWS) will be monitoring population numbers and reproductive success of cliff-nesting seabirds on the Pribilof Islands; similar data have been collected there since 1975. Don Dragoo (UA Fairbanks/USFWS), a participant in that study, will continue the documentation of food habits of kittiwakes on St. George Island to examine the relationship between food habits and reproductive success. On St. Matthew and Hall islands Ed Murphy, Philip Martin, and Brian Cooper (UA Fairbanks), Alan Springer (FALCO), and Brian Lawhead (ABR) will be studying population numbers, food habits, and reproductive success of cliff-nesting seabirds and will be mapping auklet colonies. Art Sowls and Vern Byrd (USFWS) will monitor Least Auklet plots there and will count seabirds on Pinnacle Island. Studies of the population status of cliff-nesting seabirds at Bluff, which began in 1975, will be continued this year by Ed Murphy. Alan Springer will collect similar data for comparisons with previous years at St. Lawrence Island and Cape Lisburne. George Divoky is now in the eleventh year of his study of the individually marked colony of Black Guillemots on Cooper Island.

Coastal and Pelagic Studies

George Divoky (UA Fairbanks) will be continuing a study of the fall migratory movements of Ross' Gulls in northern Alaska. George Hunt (UC Irvine) currently is studying the foraging distributions of seabirds in the northern Bering Sea and is focusing on the effect of small-scale oceanographic features as concentrating mechanisms for their prey. Nancy Harrison (UC Irvine) concurrently is studying the diets of both surface-feeding and diving seabirds. Bob Day (UA Fairbanks), with the assistance of Michael Newcomer (Moss Landing), is continuing his pelagic surveys of seabirds in the Bering Sea and in the North Pacific, focusing on seabird feeding associations and seabird-cetacean interactions. Rich Rowlett (NMFS) is continuing his observations

of pelagic distributions of seabirds from Japanese catcherboats. Declan Troy and Steve Johnson (LGL) are continuing their all-seasons study of food habits, distribution, and abundance of seabirds and coastal waterfowl in waters north of the Alaskan Peninsula and eastern Aleutian Islands. Dave Irons (USFWS) is studying the influence of habitat type on waterbird distributions in both summer and winter in Prince William Sound.

Coastal Waterfowl

Dirk Derksen (USFWS) is now heading a major research effort on populations of the Cackling Canada Goose, White-fronted Goose, Emperor Goose and Brant on the Yukon-Kuskokwim Delta. This research consists of several studies by numerous USFWS personnel and university cooperators. Projects include (1) Brant reproductive and population ecology at Tutakoke, supervised by Jim Sedinger (USFWS), fox-goose interactions at Kokechick (Mike Anthony and Ken Kertell, USFWS; Alice Stickney, UA Fairbanks), Emperor Goose and Cackling Canada Goose nesting ecology at Camp Lake (Margaret Petersen, USFWS and Karen Laing, UC Davis), and brood-rearing success at Old Cherak (Craig Ely, USFWS).

Tom Rothe (ADFG) is continuing a monitoring study of Dusky Canada Geese reproduction on the Copper River Delta and migration of waterfowl in upper Cook Inlet.

Bob Burgess (ABR) is supervising a study of population numbers and disturbance of Snow Geese on the Sagavirnirtok River Delta, Steve Murphy (ABR) is conducting a study of the effects of disturbance on geese in the Prudhoe Bay area.

Conservation

Most of the studies listed in the previous sections are addressing the research aims of one or more agencies in relation to the conservation of seabirds and/or coastal waterfowl. Some of the field studies are directly applied to seabird conservation. As examples, Ed Bailey (USFWS) is removing foxes from Big Koniuji Island, and Bob Day (UA Fairbanks) and Rich Rowlett (NMFS) are monitoring seabird mortality in the Japanese gillnet fishery. Fred Deiner (USFWS) is monitoring populations of seabirds on Kiska prior to fox control efforts there. Gerry Shields (UA Fairbanks) is studying the cytogenetics of Aleutian Canada Geese.

Gerry Sanger and Jon Nelson (USFWS) are drafting USFWS issue papers on fisheries and other marine resources, with a focus on seabird-fisheries interactions. They are also monitoring the experimental capelin fishery in Togiak Bay, particularly in relation to the practice of discarding all but ripe females.

Reporting

The numerous researchers cited above are in various stages of report writing and manuscript preparation in addition to their field programs. Others, not mentioned above, who are in the writing phase include: Dee Boersma (UW Seattle), who is analyzing her data base on the diet, reproductive behavior, and reproductive ecology, and effects of oil ingestion on Fork-tailed Storm Petrels; Eric Hoberg (OSU, Corvallis), who is completing a study on the coevolution and historical biogeography of alcids and a genus of host-specific cestodes; and Denby Lloyd (UA Fairbanks), who is completing an M.S. thesis on the reproductive performance of murres and kittiwakes at Cape Peirce and the Pribilof Islands in the early 1980's.

Catalog Maps

Art Sowls (USFWS, Anchorage) is computerizing the data base for the Seabird Colony Catalog, making continuous updating possible. He is also developing an archiving plan for population plot data and photographs. George Divoky (UA Fairbanks/NOAA) is completing drafts of distribution and abundance maps for 25 seabird species as part of the "Gulf of Alaska and West Coast Living Marine Resources Mapping Project" being conducted by NOAA.

BRITISH COLUMBIA, GARY KAISER

Research involving seabirds continues in a variety of projects along the British Columbia coast. Kees Vermeer (Canadian Wildlife Service) is completing our investigation of the Mew Gull breeding areas in coastal lakes and is preparing to look at the biology of the rapidly expanding urban colonies of Glaucous-winged Gulls. Ian Jones (University of Toronto) has completed the fieldwork for his study of song in Ancient Murrelet. He was able to work on the same colonies where Tony Gaston (CWS) is looking at elements of population dynamics and colony structure. One of the objectives of that project is to improve the effectiveness of long-term monitoring techniques. Doug Bertram (Simon Fraser University) is expanding a pilot project on growth in young Rhinoceros Auklets to a more detailed analysis of energetics and physiological ecology. Lastly, Jean-Pierre Savard (CWS) is initiating a long-delayed study of molting seaducks.

There are also some important inventory projects underway. The first is the seabird colony inventory carried out by Moira Lemon and Michael Rodway (CWS). It is a detailed appraisal of each colony and is intended to provide a comprehensive update of the material collected by the B.C. Provincial Museum in 1976. It also includes the establishment of permanent monitoring plots on the major alcid colonies. The application of sound statistical design to this type of project greatly increases the time required for its completion. The survey of thirty or so Ancient Murrelet and Cassin's Auklet colonies on the east coast of Moresly Island consumed three field seasons. The Vancouver Island colonies, which are mostly surface nesting species, were surveyed in 1980 and 1981, but the northern mainland coast remains largely unexplored. Cursory surveys in 1926, 1948, and 1977 did not locate any major alcid colonies along that coast, but the complete absence of seabirds from the area would be surprising.

The second major inventory project is the compilation of Volume 1 of the British Columbia Atlas of Ornithology. That document will be a summary of thousands of published and casual observations collected over the past century. It will be the only available summary of seasonal distribution of loons, grebes, and seaducks and should help identify major gaps in our knowledge.

There is some urgency to all of this work. The moratorium on offshore petroleum exploration will be lifted within the next couple of years, and it is vital for conservation efforts that the baseline data and management proposals be as well organized and as well supported as possible.

Current recommendations center on the most obvious data gaps:

a. complete the seabird colony inventory along the mainland coast from Prince Rupert and Cape Caution;

b. identify seasonal movements and concentrations of molting and migrant alcids, scoters, loons, and grebes; and

c. set up a seabird population monitoring station for long-term study of trends and basic elements of population dynamics on Triangle Island or some other large, mixed colony.

WASHINGTON, STEVEN M. SPEICH

Walla Walla College, College Place

J. Galusha and R. Carter are studying factors important to maternal recognition by parents of young Glaucous-winged Gulls on Protection Island.

C. J. Amlaner, N. Ball, and J. Shaffery are studying sleep behavior and foraging strategies in Glaucous-winged Gulls on Protection Island and around Port Townsend, Washington.

M. Opp is measuring the heat stress and energy related to normal incubation in Glaucous-winged Gulls on Protection Island.

University of California, Berkeley

D. Bell of the Museum of Vertebrate Zoology started the first year of work on a study of the hybridiztion and mate selection of Glaucous-winged and Western Gulls in the Northwest.

Western Washington University, Bellingham

D. Shea is determining the levels of PCBs and DDE in Great Blue Herons from Puget Sound and the Hanford Reserve in eastern Washington. He is relating levels of contamination to potential impacts on reproductive success. Research is being conducted at the Battelle Laboratories in Richland, Washington.

University of Washington, Seattle

W. Reid of the Department of Zoology is continuing his study of life history strategies of Glaucous-winged Gulls nesting on Protection Island.

D. Boersma of the Institute of Environmental studies continues to study the breeding biology of Leach's and Fork-tailed Storm-Petrels on Tatoosh Island, Washington. This coming year she will return to Punta Tombo, Argentina to continue a long-term study of Magellanic Penguins.

Battelle Laboratories, Richland

R. Fitzner is continuing his study of environmental pollutants in Great Blue Herons and other marine birds in western Washington.

Seattle Aquarium

G. Ballew continues his captive breeding program of alcids.

U.S. Fish and Wildlife Service

U. Wilson (Willapa National Wildlife Refuge) is continuing his studies of (1) behavioral natural history of the Rhinoceros Auklet on Protection Island, using artificial burrows; (2) distribution and abundance of seabirds along the outer coast of Washington, especially in light of the ongoing "El Nino" phenomenon; (3) Black Brant wintering at Willapa Bay; and (4) effects of human disturbance on Caspian Terns on East Sand Island in the mouth of the Columbia River.

C. Henny (Pacific Northwest Field Station of the Patuxent Wildlife Research Center) is evaluating the possible uptake of several heavy metals, organochlorine pesticides, PCBs, and other industrial pollutants by wintering Surf Scoters in Puget Sound. Nesting Double-crested Cormorants immediately north of Puget Sound are being studied to determine pollutant burdens.

S. Thompsan (Nisqually National Wildlife Refuge) is, (1) continuing the surveys of nesting seabirds in the San Juan Islands NWR; (2) continuing the survey of nesting seabirds on Protection Island (soon to be a National Wildlife Refuge); and (3) collaborating with C. Henny in a study of environmental contaminants in Surf Scoters wintering in Puget Sound; and of breeding Double-crested Cormorants.

Washington Department of Game

S. Jeffries is continuing to supervise the effects of U.S. Navy practice bombing of Sea Lion Rocks on nearby nesting marine birds and marine mammals. Sea Lion Rock is on the boundary of a National Wildlife Refuge and Wilderness area.

Independent Researchers

T. Wahl is continuing efforts begun in 1971, collecting data on seabirds over the continental shelf off Washington through censuses from charter vessels and research vessels.

S. Speich and T. Wahl are waiting for the completed Catalog of Washington Seabird Colonies to be published by the U.S. Fish and Wildlife Service.

D. Paulson and J. Erckmann are continuing their work on a guide to field identification of birds of the Northwest. J. Erckmann is illustrating the volumes. The first volume covers shorebirds.

S Speich continues to survey seabird colonies in Washington and to search for historical records of marine birds in Washington.

OREGON, PALMER C. SEKORA

U.S. Fish and Wildlife Service

Daniel L. Boone continues to monitor the breeding activities of tufted puffins on Goat Island.

The USFWS is establishing a marine bird biologist position at the Newport Marine Science Center. This position will be responsible for marine bird studies and monitoring along the Oregon coast.

University of Oregon

Daniel H. Varoujean (of OEMB) and William Pearcy (of Oregon State University) continue to study the effects of Common Murre foraging on coho salmon smolts emanating from the Columbia River estuary by analyzing the stomach contents of birds collected off the Columbia River.

The 13-year-old cormorant colony study at Oregon Institute of Marine Biology is continuing. This is a basic breeding biology study.

Daniel H. Varoujean (of OIMB) has completed a study on bird use of the Coos Bay tide flats. The study was funded by the Oregon Department of Fish and Wildlife Nongame Program.

Other

Michael R. Graybill, newly appointed Manager of the South Slough National Marine Sanctuary, and Janet Hodder are continuing to study the breeding biology of Pigeon Guillemots nesting among the timbers of piers at Coos Bay and in colonies north of Coos Bay.

Robert L. Pitman is continuing a study, begun in 1979, of Leach's Storm-Petrels nesting on Saddle Rock. He is banding adult birds and chicks, collecting and analyzing stomach contents regurgitated by birds removed from mist nets, and documenting breeding chronology and fledging success.

Range Bayer is continuing a nest success study at Yaquina Head, primarily with western gulls, pelagic and Brandt's cormorants.

NORTHERN CALIFORNIA, THOMAS E. HARVEY

News of the Ocean

As the 1985 breeding season progresses, it is clear that El Nino is no longer exerting an influence in this region and more "normal" oceanic conditions exist. Several strong upwelling episodes have occurred at the Farallons, as evidenced by changes in sea surface temperatures. Euphausiids and juvenile rockfish appear to be readily available near the islands this spring. At present, most Farallon birds are laying early and synchronously.

University of California Santa Cruz

K. Briggs, in cooperation with PRBO, is conducting an MMS feeding ecology study of seabirds which breed in the Gulf of the Farallons and identifying major feeding areas through observation, collection, and satellite data.

UC Davis

D. Anderson is continuing studies on the pelagic distribution and abundance of marine birds in the Gulf of California and monitoring post-El Nino effects. Banding and color-marking of Brown Pelicans in the gulf continues and any reports of sightings or recoveries are greatly appreciated.

Point Reyes Bird Observatory

A. Farallon Islands. PRBO continues to monitor breeding seabirds and is conducting projects on the annual cycle and molt of the Cassin's Auklet (H. Carter), effects of sub-lethal doses of oil on breeding patterns of Cassin's Auklets (in cooperation with M. Fry and D. Grau of UC Davis), population biology of the Western Gull (T. McElroy Penniman and J. Penniman), age- and sex-related recruitment in the Western Gull (L. Spear). A book summarizing research to date on the breeding ecology of Farallon seabirds should be completed in the near future.

B. Coastal Estuaries. G. Page and L. Stenzel are investigating site fidelity of wintering Dunlin on Bolinas Lagoon. D. McCrimmon and H. Pratt are studying the distribution and abundance of foraging wading birds on Bolinas Lagoon and will ultimately focus on bioenergetics. G. Page is continuing work on the distribution, abundance, dispersal patterns and breeding biology of Snowy Plovers throughout California, but concentrating in Monterey Bay with F. Bidstrup, J. and R. Warriner. Censusing of Black Rail populations in San Francisco Bay with J. Evans will also continue.

C. Mono Lake. D. Shufrod and G. Page continue studying the breeding success and population size of California Gulls at Mono Lake.

D. Antarctica and the Tropics. D. Ainley is studying the pelagic ecology of marine birds in relation to oceanographic patterns through the Marine Ice Edge Zone project in the South Atlantic Ocean and studies in the Tropical Pacific Ocean. He is also compiling information on 20 years of South Polar Skua population dynamics studies at Ross Island. W. and S. Trivelpiece, G. Geupel and J. Kjelmyr are studying the breeding and feeding ecology of Pygoscelid penguins at the South Shetland Islands.

USFWS/Humboldt State University

P. Springer, recently retired from the Service, continues to study population, distribution, and ecology of the Aleutian Canada Goose under a Calif. Dept. of Fish and Game contract with Humboldt State Univ. The population has increased from 790 in 1975 to 4,200 in 1984, due primarily to goose-hunting closures on wintering grounds and staging areas. Another wintering area was discovered near El Sobrante on the northeast side of San Francisco Bay in 1982.

USFWS/Pacific Coast Field Station

H. Ohlendorf is continuing studies of selenium and other contaminants associated with agricultural wastewater in the San Joaquin Valley. The primary study areas are Kesterson Reservoir (where selenium is considered responsible for severe impacts on reproduction of aquatic birds) and the Volta Wildlife Area (a control site with good water quality). Another study underway (in cooperation with R. Lowe, T. Harvey, and P. Kelly) concerns the levels of selenium, heavy metals, and organochlorines in Surf Scoters wintering on San Francisco Bay.

USFWS/S.F. Bay NWR

T. Harvey, R. Lowe, and P. Kelly (CDFG) continue studying bird use of salt ponds in S.F. Bay and investigating the population status of the Calif. Clapper Rail.

Hubbs Sea World

J. Jehl is continuing his investigations of waterbird use of Mono Lake.

MEXICO, ENRIQUETA VELARDE

Dr. Hugh Drummond, Instituto de Biología, Universidad Nacional Autónoma de México. Reproductive biology and behavioral control of brood size in the blue-footed booby, Isla Isabela, Nayarit.

Gilberto Gomez and Juan Guzmán. Universidad Autónoma de Baja California. Inventory and distribution of birds, mainly waterfowl and seabirds in the area of La Paz, Baja California, and adjacent islands.

Enriqueta Velarde. Instituto de Biología, Universidad Nacional Autónoma de México. Behavioral patterns, breeding and feeding ecology of the Heerman's gull in Isla Rasa, Baja California. Feeding ecology of the elegant tern in Isla Rasa. Impact of predation of Yellow-footed gull on Heermann's gulls chicks. Analysis of the diet of barn owls feeding on seabirds and fishing bats in the area of Isla Rasa and Isla Partida, Baja California. Long-term conservation project of the islands of the Gulf of California in conjunction with the Mexican government and The Nature Conservancy International.

HAWAII, STEWART I. FEFER

Main Hawaiian Islands

A. Laysan albatross translocation project: Laysan albatross have nested on the Pacific Missile Range, Mana, Kauai for several years. This colony has been ravaged by dogs in the past and has also been a concern of the military relating to bird air strike hazards. The Fish and Wildlife Service (FWS) has been attempting to attract Laysan albatross to Kilauea Point National Wildlife Refuge (NWR) on Kauai for several years by altering habitat to make it more attractive as a nesting area. During 1984, eight Laysan albatross chicks were moved from nest sites on the Missile Range to sites created on Kilauea Point where the chicks were artificially fed. Unfortunately, despite survival of chicks to near fledging, no chicks successfully fledged from Kilauea Point in 1984. In 1985, Laysan albatross chicks from Pacific Missile Range will be moved to Sea Life Park on Oahu where they will be fed and fledged. At Kilauea Point, one pair of Laysan albatross established a nest and laid and attended an egg but, during a severe rainstorm in February, this nest was lost. Dan Moriarty, Kilauea Point NWR, USFWS, P.O. Box 87, Kilauea, Kauai 96754.

B. Kauai streetlight shading: The Fish and Wildlife Service and the Nature Conservancy of Hawaii have provided funds for shading streetlights on Kauai to reduce attraction and resulting disorientation of Newell's Townsend's shearwaters on Kauai. The streetlight shading has been done by the Hawaiian Electric Co. on Kauai in the vicinity of Kapaa

where fallout has been severe. The results of the shading program will be evaluated to determine if future shading efforts in other areas of Kauai are required. Alan Holt, Nature Conservancy, Honolulu, HI.

C. Monitoring status of dark-rumped petrels in Haleakala National Park. Resource Management, Haleakala National Park, Box 369, Makawao, HI 96768.

D. Monitoring status of Newell's Townsend's shearwater colonies on Kauai. Alan Holt, Nature Conservancy, Honolulu, HI.

E. Monitoring status of wedge-tailed shearwaters on Kauai. Dan Moriarty, Stewart Fefer, USFWS, Box 50167, Honolulu, HI 96850.

F. Monitoring status of Laysan albatross on Kauai. Dan Moriarty, Stewart Fefer, USFWS, Box 50167, Honolulu, HI.

G. The sequence of events during pipping of eggs of the red-footed booby at Ulupau Crater, Oahu, and Kilauea Point, Kauai, will be studied. The pipping process in boobies has not been described. The water loss from the pipped eggs will also be measured. In many other species, a disproportionate amount of water is lost from pipped eggs. G. Causey Whittow, Univ. of Hawaii, Honolulu, HI.

H. Monitoring blood parameters of a captive Laysan albatross population. Blood of Laysan albatross at Sea Life Park will be monitored to determine presence/absence of blood parasites and to establish comparative data on parameters for comparison with wild populations. Sea Life Park, Waimanalo, HI.

Islands Offshore of Main Hawaiian Islands includes Kaula)

A. Seabird oil toxicity study, wedge-tailed shearwaters, Manana Island, Oahu. To determine the effects of crude oil exposure on breeding success of wedge-tailed shearwaters. D. M. Fry and C. R. Grau, Depr. of Avian Sciences, UC Davis.

B. Inventory of breeding populations of selected offshore islands of Maui and Lanai. Cameron Kepler, Maui Field Station, USFWS, 248 Kaweo Pl., Kula, Maui, HI 96790.

Northwestern Hawaiian Islands

A. Survey and inventory of seabirds on the Northwestern Hawaiian Islands. S. I. Fefer, D. Hu, USFWS, Box 50167, Honolulu, HI 96850.

B. Monitoring seabird populations in the NWHI. Baseline information on breeding parameters, food habits, disease, and pollutant levels. Breeding parameters measured include reproductive success, egg size, and chick growth. During 1985, emphasis on Tern Island, French Frigate Shoals, and Laysan Isalnd. S. I. Fefer, D. Hu, T. Ohashi, L. Martin, Ann Dierks, Sheila Doyle, Bill Meunch, USFWS, Box 50167, Honolulu, HI 96850.

C. Study of incidence of avian pox, lead poisoning, and other mortality factors on Midway Islands and other NWHI. USFWS, Honolulu HI; National Wildlife Health Laboratory, Madison WI.

D. Study of mortality, survival of Laysan albatross populations on Midway Islands. Several thousand adults, subadults, and chicks of Laysan albatross have been and will continue to be banded and recaptured during the next several years as part of a long-term study to determine survival, mortality of age-classes of Laysan albatross. As Laysan albatross have been banded in large numbers on Midway Islands since the 1950's by several scientists, Midway is an ideal place to collect these data. Ralph and Elizabeth Anne Schreiber, Los Angeles County Museum, 900 Exposition Blvd., Los Angeles, CA 90007.

Other Pacific Locations

A. Predator control on Howland Island: Successful eradication of cats on Jarvis during 1982/1983 has led to planned eradication on Howland Island using similar techniques. Program to commence in 1985. Stewart Fefer, USFWS, Honolulu, HI.

B. Monitoring food habits, populations, reproduction, adult weight, egg size, and chick growth in seabird populations of Christmas Island and Johnston Island. Ralph W. and Elizabeth A. Schreiber, Ornithology Section, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007.

C. Monitoring seabirds on Refuge/Federal Islands: periodic visits to Wake, Howland, Rose, and Baker Islands to assess seabird populations and phenology. USFWS, Honolulu HI.

NORTHEAST REGIONAL REPORT, RON NAVEEN

A brief survey of the northeast indicates a variety of seabird-related research and projects that are in process and, in some cases, on the verge of completion.

In the vicinity of the Maine coast, the Massachusetts Audubon Society is continuing its efforts to reestablish Least Terns in southern Maine; Steve Kress and National Audubon are continuing work on establishing and maintaining Atlantic Puffins along the coast; and, through a cooperative arrangement between the College of the Atlantic and the U.S. Fish and Wildlife Service, activities relating to breeding Roseate, Common, and Arctic Terns on Petit Manan Island are continuing.

In maritime Canada, the following research is underway:

A. Surveys and Breeding Success of Larus Gulls and Terns on Sable Island (A. R. Lock);

B. Migratory Movements and Molt of Immature Arctic Terns (A. R. Lock and H. Blokpoel);

C. Systematic Beached Bird Surveys, coastal Nova Scotia, St. Pierre and Miquelon, and southeast Newfoundland (R. D. Elliot, M. Borotra, R. Etcheberry, and A. R. Lock);

D. Interspecific Relationships Between Sympatrically Breeding Alcids, Gannet Island, Labrador (D. N. Nettleship and T. R. Birkhead);

E. Breeding Performance, Food, and Feeding of Common Murres and Atlantic Puffins in Witless Bay, Newfoundland (D. N. Nettleship);

F. Distribution and Abundance of Leach's Storm-Petrel and Atlantic Puffin at Baccalieu Island, Newfoundland (D. N. Nettleship and A. Macfarlane);

G. Abundance and recent changes of Northern Gannet Populations in North America (D. N. Nettleship and G. Chapdelaine);

H. Inter- and Intraspecific Variation in Occupancy Rates of Leach's Storm-Petrel and Atlantic Puffin in Atlantic Canada (D. N. Nettleship);

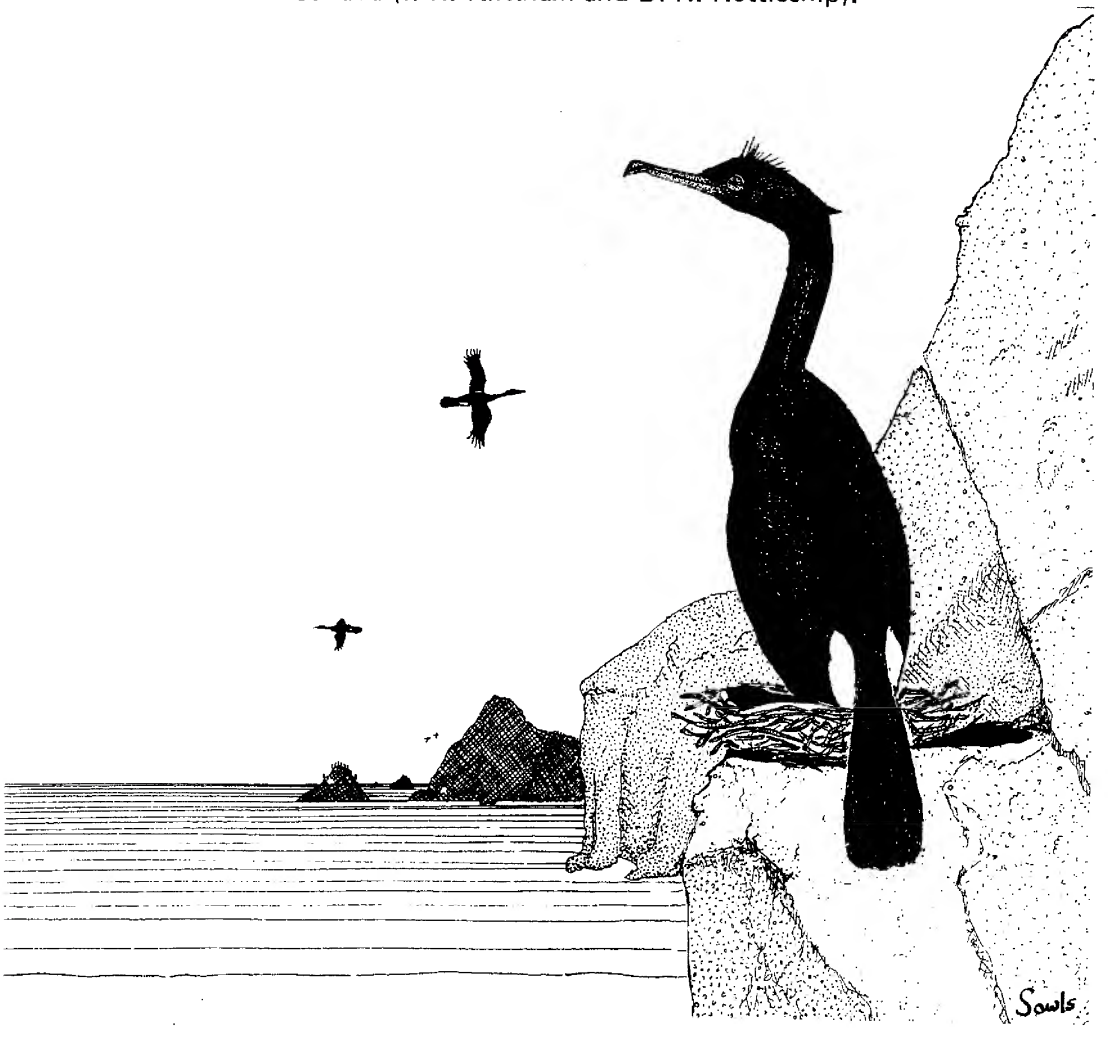
I. Patterns of Growth of Nestling Atlantic Puffin Reared in Captivity on Different Natural Diets (D. N. Nettleship and A. W. Diamond);

J. Transplant of Newfoundland Atlantic Puffin Young to eastern Egg Rock and Seal Island, ME (D. N. Nettleship and S. Kress);

K. Status and Recent Changes of High Arctic Colonially Breeding Seabirds (D. N. Nettleship and A. J. Gaston);

L. Factors Influencing Pelagic Distribution of Seabirds During Their Annual Cycle (R. G. B. Brown); and

M. Status of Roseate Terns in Canada (I. R. Kirkham and D. N. Nettleship).



CONSERVATION SECTION

- *Second Meeting of PSG Conservation Committee*

The second meeting of the PSG Conservation Committee was held 15 December 1984 during the 11th annual PSG meeting at Long Beach, California. The following Committee members attended: Dan Anderson, George Divoky, Barbara Johnson, Stewart Fefer, Lora Leschner, Palmer Sekora, Art Sowls, Steven Thompson, Enriqueta Velarde, and Kees Vermeer. Absent were: Warren King, Ron Naveen, Audrey Newman, and Robert Schlatter. Judith Hand, PSG Chair, also attended. Lora Leschner resigned; Eric Cummins and George Hunt became new members of the Committee.

The following items were discussed during the meeting:

1. Pamphlet for investigators to reduce disturbance to seabird colonies. No date was set at the previous Committee meeting for the production of the pamphlet. Also, the specific contents of the pamphlet were not discussed at that time. At this meeting, it was decided that a four-page pamphlet be prepared for 1985 and about 2,000 copies be distributed. Enriqueta Velarde suggested that it would be worthwhile to have the pamphlet translated into Spanish.

2. Index of resolutions and policies related to conservation. The Committee discussed an index on the above subject, as it would be useful to have all resolutions and policies relating to the conservation of seabirds together. Barbara Johnson volunteered to prepare the index. All copies of resolutions and policies should (from now on) be forwarded to Barbara.

3. Procedures of conservation issues. It was discussed by the members of the Committee and agreed to by the PSG Chair to forward the final copy of a conservation issue, signed or written by the PSG Chair, to the PSG regional representative who originated the issue. This is necessary information for the representative to determine what has finally been decided.

- *Conservation Plan for the Sea of Cortez (Gulf of California)*

Enriqueta Velarde, Dan Anderson, and Spencer Beebe prepared a management and planning proposal for the Sea of Cortez and its islands, entitled "Conservation of the islands in a desert sea." Enriqueta has been appointed as a coordinator to implement the plan. The plan suggests a program of scientific research, planning, and conservation of 55 islands and nearby marine resources in the Sea of Cortez. The marine avifauna is unique in that it consists of 17 species breeding on islands, of which 6 are regional relicts and 4 are endemic or quasi-endemic. For example, Rasa Island is the nesting site of over 90% of the world's population of the Heerman's Gull and the Elegant Tern.

There are also 15 major colonies of Brown Pelican, with the largest exceeding 15,000 pairs. Many cetaceans are attracted to the nutrient waters of the sea, to name a few: the Blue, Fin, Humpback, Sperm, Bryde's, and Pilot whales, as well as the endemic and rare (50 individuals or less) California harbor porpoise.

The plan is sponsored by Mexico's Institute of Biology and other Mexican and international conservation organizations. For details on the conservation plan, contact Enriqueta Velarde, Instituto de Biologia, Departamento de Zoologia, Apartado Postal 70-153, 04510 Mexico, D.F. Mexico.

- *Draft Environmental Impact Statement (DEIS) for Master Plan of the Hawaiian Islands National Wildlife Refuge (NWR)*

PSG's comments on the DEIS

PSG's main comments on the DEIS (letter Judith Hand, 26 October 1984) were that the PSG endorse the general approach but would like to see some modifications such as:

1. More attention on disturbance effects of deep-sea mining and nuclear waste disposal on resources (e.g., marine birds).

2. The NWR should provide a management framework to manage and protect some of its resources (e.g., marine birds).

3. The EIS should consider the use of a private nonprofit organization to conduct research (PSG volunteers its expertise) and should provide clear guidelines for decisions with respect to research in the refuge.

4. If Midway Island becomes part of the NWR, it should be managed separately.

5. Researchers have been frustrated because of extensive delays in the processing of routine research permits.

Response to PSG

1. The section on deep-sea mining has been expanded.

2. The State of Hawaii and the Western Regional Fishery Management Council are opposed to a management framework for the northwestern Hawaiian Islands.

3. The EIS is not the appropriate document in which to detail specific research policies. Research policies will be dealt with at a future date.

4. Concurs.

5. The NWR will henceforth make every effort to act on research requests in timely fashion.

Update (Stewart Fefer, April 1985)

1. The DEIS for the Master Plan for the Hawaiian Islands NWR will not be significantly changed in the final impact statement. Seabird populations will continue to be monitored for maintenance of the resource.

2. Critical habitat designation for Hawaiian monk seal. This issue is relevant to seabirds in that protection of nearshore waters for seals would also enhance seabird populations. At a recent public hearing, several conservation agencies pressed for a protection limit of 20 fathom rather than a 10-fathom contour line around the northwestern Hawaiian Islands.Moreover, the agencies suggested that Midway Island and Maro Reef should be included in the critical habitat.

- *Conservation of North Keeling Island (Cocos Keeling, Indian Ocean)*

PSG expressed its concern about the fate of seabird fauna on North Keeling on October 10, 1984 (letter Vermeer):

The Honourable M.R. Hawke
Prime Minister of Australia
Parliament House
Canberra, A.C.T. 2600
Australia

Dear Sir:

The Pacific Seabird Group, an international organization of biologists concerned with conservation and research of seabirds in the Pacific, is gravely concerned about the fate of the unique seabird fauna on North Keeling (Cocos Keeling).

Biologists who investigated seabird populations at North Keeling, informed us about the illegal shooting of thousands of frigatebirds and boobies by island residents. Seabirds already have been wiped out on the other 26 islands of the Cocos Keeling group, which are more accessible than North Keeling. The latter is the bird's last residence. If the shooting continues, seabird populations of Cocos Keeling will vanish too and the island will be much impoverished as a result.

The Pacific Seabird Group therefore urges your government to take the necessary legislative and *enforcement* measures so that present and future generations of Australians (and others) may enjoy the unique avifauna of Cocos Keeling. Even the islanders may appreciate one day the protection given to seabirds, as it may provide them with additional income from tourists visiting the island for its magnificant seabird diversity. Protection and preservation of the seabird resource of North Keeling today will stand as a monument of clear foresight and leadership of your government in the field of conservation tomorrow.

The response (April 17, 1985) from the office of the Minister for Arts, Heritage and Environment at Canberra, was as follows:

Dear Dr. Vermeer:

I have been asked to reply to your recent letter to the Prime Minister concerning the conservation of seabirds on North Keeling Island.

The Government is aware of the concern of conservation groups about the increased harvesting of seabirds on North Keeling Island by the Cocos Malay community and is examining the best means of protecting the environment of the island. The Cocos Malay community recognizes the need to introduce conservation measures for North Keeling Island and has agreed with the Government that satisfactory arrangements be established as soon as possible.

Yours sincerely,

Peter Conway
Private Secretary

Kees Vermeer
Conservation Committee Chairman

REGIONAL CONSERVATION MATTERS

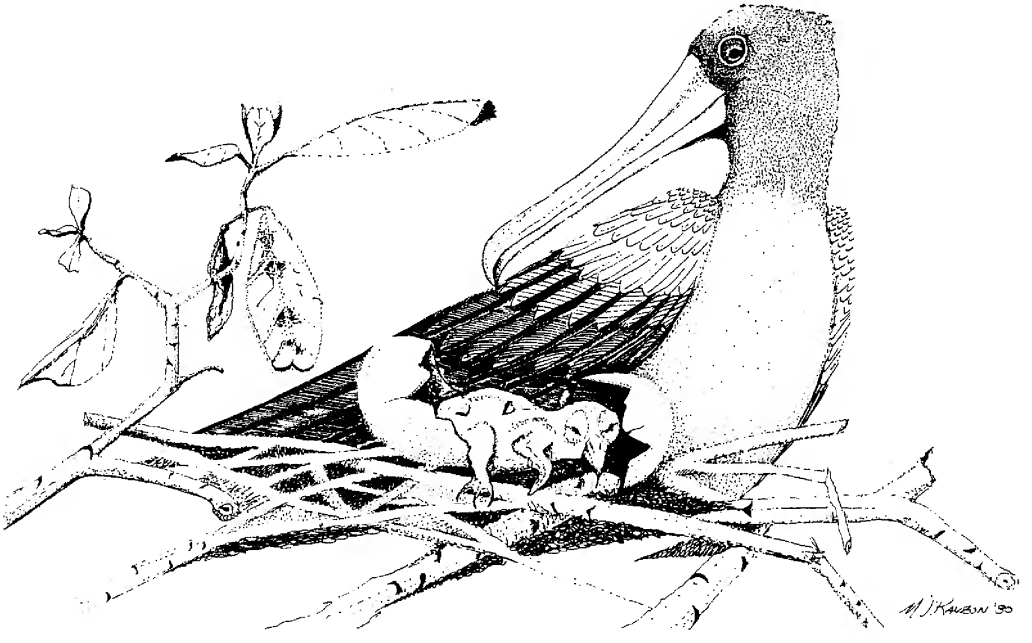
Alaska

Bob Day (UA Fairbanks) and Rich Rowlett (NMFS) are monitoring seabird mortality in the Japanese gillnet industry.

Ed Bailey (USFWS) is removing foxes from Big Koniuji Island; and Fred Deiner (USFWS) is monitoring populations of seabirds on Kiska Island prior to fox control.

Washington

The draft Master Plan for the Protection Island National Wildlife Refuge has been prepared and has gone out for public review. Simultaneously, real estate on the island is being purchased for the refuge.



WASHINGTON REPORT

While the major focus of the 99th Congress has been foreign affairs and budget deficits, several major bills affecting seabirds/shorebirds were introduced. The proposed legislation involves Endangered Species; Wetlands Acquisition; Coastal Zone Management; and Marine Protection, Research, and Sanctuaries. These bills, having died in the last session of Congress, began the slow, tortuous process of committee hearings, markup, and floor votes. In addition, three noncontroversial bills were thrown into the hopper: reauthorization of the Sikes Act, the Fish and Wildlife Conservation Act of 1980 and Fishery Conservation and Management Act.

In the executive and judicial branches of government, major actions included modifications to the Fish and Wildlife Service's endangered species list, revisions to the list of migratory birds, a Department of Interior report to Congress on the Coastal Barrier Resources Act, submission of 1986 budget requests, and court decisions on Mono Lake and St. Matthew Island.

LEGISLATIVE ACTIONS

Endangered Species Act

Passed in 1973, this Act provides strict protection for endangered animal and plant species by prohibiting the killing, hunting, collecting, purchase, or sale of any species on the endangered species list. The Act also directs federal agencies to ensure that any actions they authorize, fund, or carry out do not jeopardize a listed species or adversely affect its critical habitat. The Act is up for reauthorization this year.

As of May, both House and Senate subcommittees had held hearings. Three major issues are Western state water rights, endangered or threatened predator species, and no increase in FY '86 spending levels for enforcement. Of these, the western water rights issue has the greatest impact on wading birds. Western states are concerned that construction of hydroelectric and irrigation projects may be constrained because of conflicts with endangered species and habitat protection for such endangered species as Whooping Cranes. Western water interests are supporting an amendment to exempt them from the provisions of this Act. This effort could be a major stumbling block to reauthorization.

Wetlands Acquisition

The House Merchant Marine Fisheries and Wildlife Subcommittee held hearings on a wetlands acquisition bill virtually identical to last year's legislation. The bill died last year due to a "rider" that would have allowed the Army Corps of Engineers to construct a pair of mile-long jetties to stabilize Oregon Inlet in North Carolina's Outer Banks. This year's bill, without the "rider," would raise up to $100 million annually for 10 years to buy and preserve wetlands.

Coastal Zone Management Act

Key sections of this Act must be reauthorized in 1985 or they will expire, including the section that provides funding for states to continue their coastal zone management programs. Another section up for renewal provides funding for preserving scenic islands and estuaries. By May, both the House and Senate subcommittees had held hearings.

First passed in 1972, the Coastal Zone Management Act is the only comprehensive tool that allows federal, state, and local governments to manage cooperatively more than 95,000 miles of beaches, bays, ports and harbors, wetlands, estuaries, islands, and fisheries.

One major issue is whether federal grants to state coastal management programs should be continued. A second controversial issue involves "Consistency," which means that once the federal government approves a state's coastal plan, federal coastal activities must be "consistent" with the state's plan.

Marine Protection, Research and Sanctuaries Act of 1972 (also known as the Ocean Dumping Act)

Congress has been at an impasse over reauthorization of this Act since 1982. Title I regulates which municipal, industrial, and radioactive wastes can be disposed of at sea. Title II authorizes research on ocean dumping, and long-term effects of pollution, overfishing and other human-induced changes to ocean systems. Title I is more controversial because of a dispute over dumping of sewage sludge at a site 12 miles from New York Harbor. To date, the House subcommittees have held hearings and marked up the bill.

Sikes Act

This Act, which must be reauthorized, governs fish and wildlife conservation on military installations and other public lands. The bill is pending before the House.

Fish and Wildlife Conservation Act of 1980 (also known as the Federal Nongame Act)

The Act is intended to provide matching funds to states for nongame species. No federal funds have yet been appropriated. The bill is pending before the House.

Fisheries Conservation and Management Act

First enacted in 1976, this Act, which is up for reauthorization, set up eight regional councils to manage fisheries found from 3 to 200 miles offshore, yet it is silent on the subject of habitat preservation. The bill is pending before the House.

NEW LEGISLATIVE ACTIONS

Modifications to the Endangered Species List

To date, the Fish and Wildlife Service lists 828 species, of which 321 are found in the U.S. The list increases public awareness of the endangered species while enacting legal protection and programs to foster their recovery. Of particular interest is the proposed reclassification of the brown pelican from "endangered" to "threatened" and the proposed addition of piping plover to the endangered list.

Revised List of Migratory Birds

A final rule published in the Federal Register on Friday, April 5 (p. 13708) is a revision to the November 16, 1977 list and is necessary to bring the list up to date. Scientific names were revised, certain species were added and deleted from the list. The list includes all species of migratory birds protected by the Migratory Bird Treaty Act.

Report to Congress on the Coastal Barrier Resources Act

This Act, which prohibits the federal funding of any activities on the remaining developed islands and beaches of the Gulf and Atlantic Coasts, requires the Department of Interior to prepare a report to Congress by October 1985. This report will cover expandion in the coastal system plus management alternatives. Under the proposed legislation, the Great Lakes and Pacific Coast states (including Alaska), Hawaii, and Samoa, would be included for the first time. Various wetlands, such as estuaries, lagoons, and inlets would be incorporated. Also, the definition of "coastal barrier" would be expanded to include coral reefs and mangroves as well as barrier islands and beaches. The public comment period will close on July 15, 1985. Many states have requested that the Department of Interior hold public meetings for review/input to the report.

FY '86 Budget

The budgets of federal agencies are extremely important in the conservation of our natural resources. Without proper funding, agencies cannot carry out their mandates. The Administration's proposed budget would cut Interior programs that have the greatest impact on seabirds and waders by 15%. New land for parks and wilderness is slated for the biggest reduction.

Of particular concern is the proposal to eliminate funds for coastal zone management state grants, terminate the Sea Grant college educational and research program, cut by 16% the Marine Mammal Commission's budget, slash 45% from the National Marine Fishery Service budget for operations, research, and facilities and 50% for research on habitat loss.

Mono Lake

A court ruling issued in March states that the Los Angeles Department of Water and Power must continue to let enough water flow down Rush Creek to maintain the fishery there. Since Rush Creek is the largest tributary stream of Mono Lake, this action will enhance water levels at the lake, which provides important habitat for thousands of migrating and nesting shorebirds.

St. Matthew Island

In December, a federal judge blocked a federal land exchange that would have let oil companies use the Bering Sea Wildlife Refuge, used by nesting seabirds, as a base for oil drilling.

* * * * * * *

Five months into the 99th Congress, it is impossible to predict the outcome of any of the bills having direct or indirect impacts in seabirds and waders. The Senate has yet to act on many of them. Congress is most likely to restore funds to many of the critical programs slated for cuts by the Administration. The courts also are a vehicle for ensuring that the intent of the laws is carried out by the executive branch. The system of checks and balances between the executive, legislative, and judicial branches of government is alive and well.

Daphne Gemmill

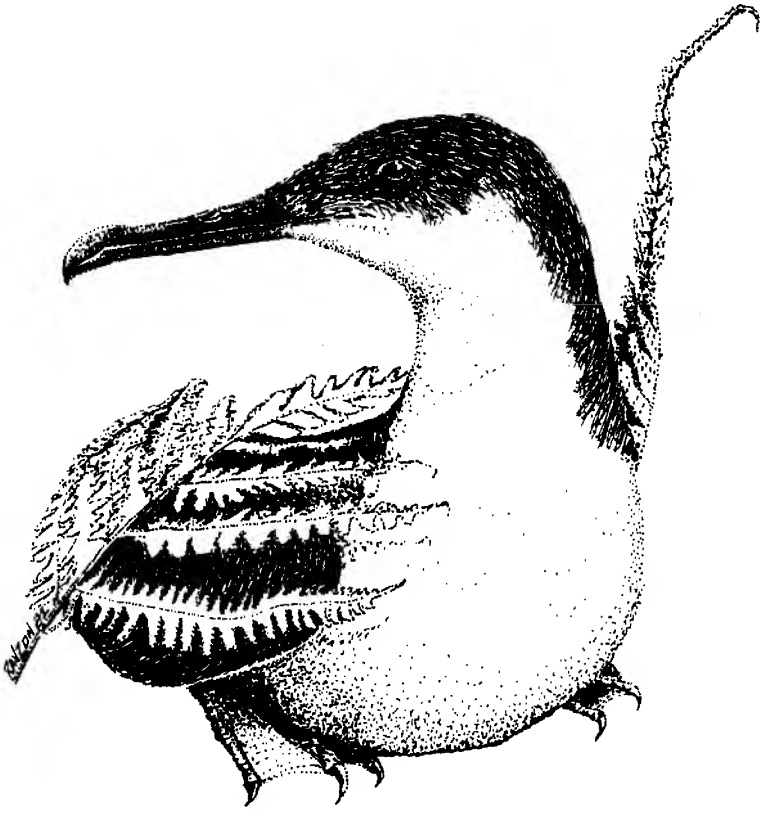
COMMITTEE ON SEABIRDS AND FISHERIES

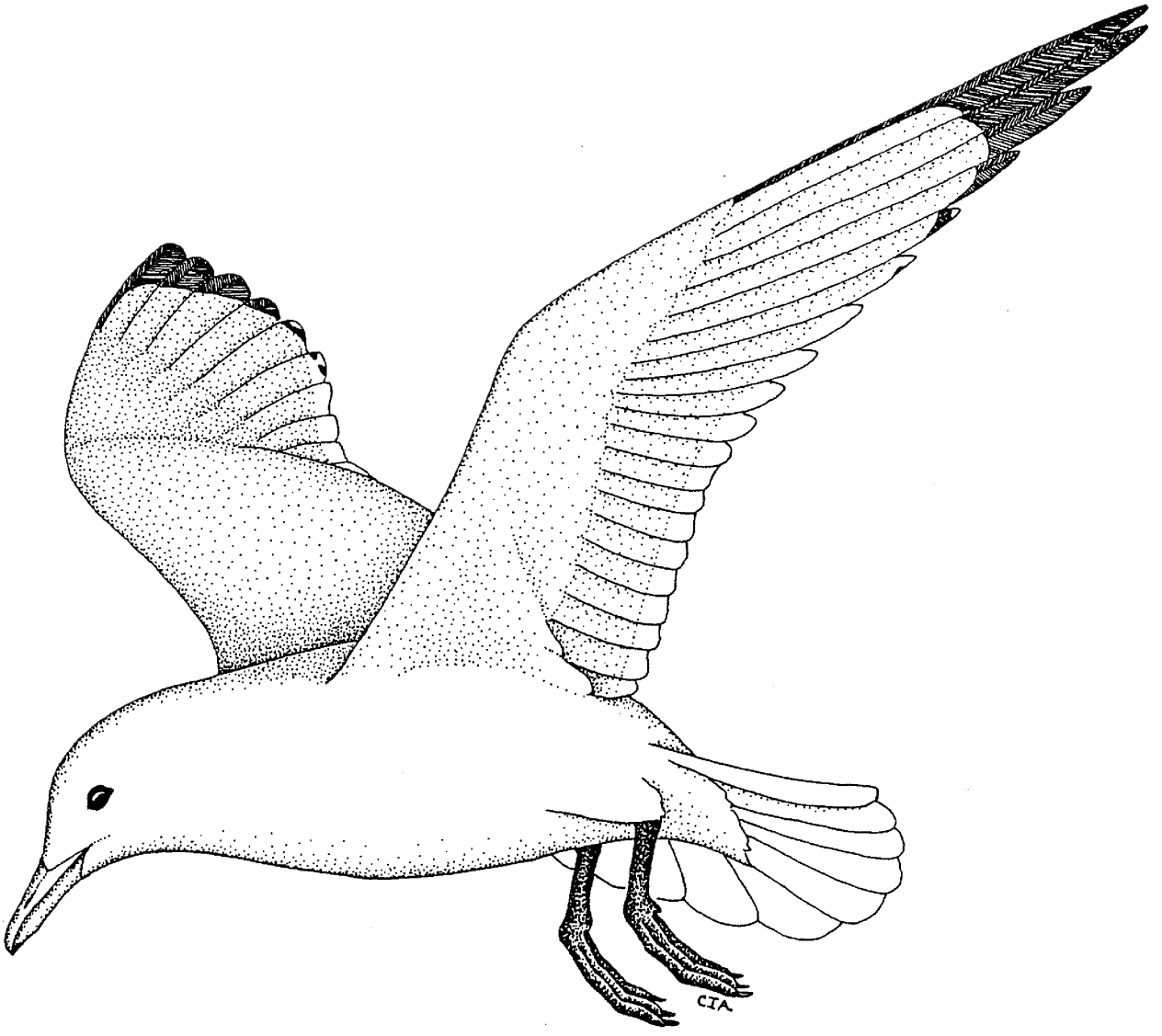
The Seabirds and Fisheries Committee convened at the 1984 PSG Annual Meeting. George Hunt resigned as chairman, due to the pressures of other obligations. The Executive Council discussed the existence and direction of the Committee and decided that the group is an important part of the PSG. Chairman Dan Anderson approached me, and I accepted the chairmanship. Bob Boekelheide, Vivian Mendenhall, and Dan Anderson also agreed to serve on the Committee. On behalf of the new Committee, and on behalf of the entire membership of the PSG, I thank the previous committee, and especially George Hunt, for their efforts.

I am taking the liberty of speaking for the entire Committee in view of the PSG Bulletin deadlines for publications and because the Committee has been in existence only a short period. The advocacy role of the previous committee has been delegated to the Conservation Committee, and the present Seabirds and Fisheries Committee will attempt to "seek and summarize information on seabird-fisheries interactions and present it to members via the Bulletin."

Rather than emphasizing "seabirds-fisheries interactions," I propose that we take the broader perspective of "seabirds and fisheries." Even if no interaction exists, fisheries and fishery research may provide useful information on prey distribution and abundance--information that otherwise would be impossible to obtain on a typical research budget. Also, fishing and research vessels may provide useful observation platforms. Conversely, seabirds may be used as fish samplers and, in some cases, appear to provide potentially useful information to fishery managers regarding status of fishery resources (e.g., South Africa). I hope that our Committee can help develop these mutually beneficial aspects of seabirds and fisheries, a goal that would be difficult to achieve if our Committee were charged with an advocacy role.

Alec D. MacCall,
Committee Chairman




CIA

Conservation of the Islands in a Desert Sea. Management and Planning Proposal for the Sea of Cortez and its Islands Gulf of California, Mexico (1985).

The Gulf of California, or Sea of Cortez, is a 1,000-km-long finger of ocean between the peninsula of Baja California and the mainland of Mexico. There are about 25 major islands, including 67-km-long Angel de la Guarda (elevation 1,315 m) and Tiburon with an area of 1,000 km, and a number of smaller islets.

For the seabird enthusiast, one of the smallest is of great interest and importance. Isla Rasa supports over 59% of the world's breeding population of Heermann's Gull and Elegent Tern on a surface area of less than a kilometer.

Isla Rasa represents a success for conservationists. Collecting of seabird eggs for commercial markets no longer occurs, and populations of both species have rebounded under protection. However, one of the problems which must now be managed is the result of a "healthy" but sometimes disruptive interest in the island: tourism. This simple problem hints at the complexity of the competing interests which need to be balanced and managed in this large and diverse region.

The purpose of this 16-page brochure is to introduce a plan which will help ensure not only that the protection of Isla Rasa is improved, but that comparable conservation measures are implemented throughout the Gulf. The plan involves three phases: an intensive two-year inventory (from knowledge should come better planning), an ongoing program of research combined with stewardship (and guardianship), and an ongoing program of environmental education.

For most biologists, there is nothing "new" in the brochure. The purpose seems to be to attract attention, and that is just what is needed. The program requires everything from financial support to scientific expertise, and the more people who become aware of the plan, the greater its successes will be.

It is easy to curl a skeptical lip at many conservation projects. "Too little, too late" is an easy response. For instance, one wonders if commercial fisheries in the Gulf can be restrained. However, many of the islands are in relatively pristine condition (i.e., there is much left to be preserved). I believe that much of a loaf is better than none, and there is reason to believe that this program will achieve many of its goals. I find it particularly encouraging that this effort not only includes many individuals from Mexico as well as the U.S., but that many of the instigators are from Mexico; a conservation movement that has many roots in the home country is all the more likely to succeed. An example of the binational approach comes in the concurrent publication of this brochure in Spanish, under the title, *Conservacion de las islas en un mar en el desierto.*

Readers interested in learning more about this region are urged to consult *Island Biogeography in the Sea of Cortez*, Ted J. Case and Martin L. Cody, editors, published by the University of California Press (1983).

For further information on the research and conservation plans, contact:

Enriqueta Verlarde
Instituto de Biologia/U.N.A.M.
Departamento de Zoologia
Apartado Postal 70-153
04510 Mexico, D.F., Mexico

or

Spencer Beebe
The Nature Conservancy
1785 Massachusetts Avenue, N.W.
Washington, D.C. 20036
U.S.A.

Richard E. Webster

Marine birds: their feeding ecology and commercial fisheries relationships. 1984. A special publication compiled by the Canadian Wildlife Service for the Pacific Seabird Group. Proceedings of the Pacific Seabird Group Symposium, Seattle, Washington, 6-8 January 1982. Edited by David N. Nettleship, Gerald A. Sanger, and Paul F. Springer. Minister of Supply and Services Canada 1984 Catalogue No. CW66-65/1984 ISBN 0-662-13311-0.

The PSG was active in 1982. In January, it held a symposium in Seattle on the biology of marine birds including waterfowl. In December, it held a symposium in Honolulu on tropical seabird biology. The results of the Honolulu symposium have already been published. The papers presented at the Seattle symposium are published in these proceedings. They focus on field studies, direct interpretations, and speculations about applications to conservation.

Part I of the Seattle proceedings consists of 6 articles on food and feeding ecology of waterfowl in Alaska and British Columbia; Part II consists of 7 articles on the feeding ecology of pelagic birds off California, in the North Pacific and Bering Sea; Part III consists of 10 articles on seabird/commercial fisheries interactions from South Africa to the North Sea, Greenland, off Newfoundland and from Peru to California and British Columbia. Several articles discuss the use of numerical models to predict the effects of human manipulations on ecosystems.

It would be a luxury to read all the articles in both symposia carefully and to think about them in the context of material which has appeared on the seabirds of Alaska's continental shelf. That is not practical, but I can try to make this review stimulating by using it to criticize one theoretical model which many readers use. So, this will not be a standard book review. I will refer to articles selected because they illustrate points I want to make about the theme of energy flow.

Several intellectual models have helped people to interpret the welter of detail which field naturalists observe, and naturalists have been criticized for making their reports "purely descriptive." "Special Creation" and "The Great Chain of Being" from lower to higher levels survived for centuries. Then, Darwin's model of natural selection replaced the classical model (Divine Plan) for most of us. Ecosystem biologists (synecologists) embraced Lindeman's trophics-dynamics model with enthusiasm akin to that with which I embrace natural selection. One assumption central to the trophics-dynamics model is that energy flow between trophic levels provides a unifying principle or "driving function" which makes ecosystems work--achieve homeostasis--when combined with community structure and cybernetic feedback mechanisms. It has been speculated that when these elements of community function are identified, the behavior of the whole system

can be predicted. I believe that the trophics model as generally used is contradictory to Darwinian natural selection, because it requires group selection to act as strongly at higher levels of organization as natural selection acts at the level of the individual.

The speculations on the implications of commercial fisheries for seabird conservation depend in part on modelling. Furness in his paper: "Modelling relationships among fisheries, seabirds, and marine mammals" provides a tempered view of modelling. He says:

> Calls for culls of seals or seabirds to increase fishery yields have been based on the projection of captive studies of food intake to field populations. Such estimates make a number of unsupported assumptions and lack statistical confidence limits. More precise computations can be made, based on generalized bioenergetics equations....However, partitioning fish consumption between competing interests does not in itself allow detailed predictions of changes that will result from human manipulation. A number of empirical studies indicate that population responses to a reduced food supply depend on a spectrum of factors, particularly species life history and interspecific relationships.

I want to carry these ideas further. The idea that energy flow unifies systems finds its parallels in the chemical mechanisms by which cells ensure the safe passage of electrons and energy-rich phosphate bonds and in the homeostatic mechanisms of individual organisms. It also finds analogies with cash flow in human economies. I suspect that, in fact, this concept originated in human economics, and was first applied to trophics-dynamics as a metaphor.

While energy flow has been widely credited with making ecosystems work, it seems to me that the production of a gross excess of young is really the "stuff" that makes carnivory and herbivory a viable way of life. Natural selection favors individuals which produce a maximum number of offspring without regard for the number of young which can become established breeders and/or for the number "needed" to replace the stocks.

The excess of adult seabirds capable and eager to reproduce which flock around seabird cliffs reflects this surplus. At Bluff, Alaska, we found perhaps half again as many kittiwakes, three times as many murres and five times as many Horned Puffins as could find nesting sites. Think of the excess of reproduction of coelenterates, echinoderms, molluscs, crustacea, or fish, vis. (the ichthypolankton). The reader may recognize this as Elton's pyramid of numbers in another guise, but Elton was making a point about the relation between entire population sizes, not the specific reproductive potentials.

Carrying the metaphor of trophics-dynamics further, consider the ornate architecture needed to diagram energy flow through the food web used by Oldsquaws in terms of trophic levels (Sanger and Jones, "Winter feeding ecology and trophic relationships of Oldsquaws and White-winged Scoters on Kachemak Bay, Alaska") and (Johnson: "Prey selection by Oldsquaws in a Beaufort Sea Lagoon, Alaska"). The authors prudently avoided such an attempt.

Indeed, most students of trophics say that correspondence of species niche with trophic levels is irrelevant. So I may be dealing not so much with a conflict of theory as with unrelated fields. Clearly, energy flow and nutrient cycling set limits to population sizes, the way the area of seabird cliff faces do.

The width and directions of arrows describing energy flow provide a picture of sorts. But the species have a lot more reality to me if a line drawing is included and some comments made on habitat, life stylesm and relative abundance. Such information might reveal the predator's choice among alternative preys. For example, I found it interesting in Springer, Roseneau, Murphy, and Springer's work at Cape Thompson and Cape Lisburne (in OCSEAP final reports) that when the major prey species failed, the murres used an increased species diversity of prey. This makes good sense, as it reflects the generality that a very few species are really numerous and lots are relatively scarce.

The admirable orderliness found in physical systems and implied to exist by trophics models appear, unfortunately, to be intolerable for active organisms driven by natural selection. Marine fish, birds, and mammals are selected to be emancipated, not linked with particular trophic systems or water masses. No one habitat can be depended upon for a consistent supply of resources, vis. the plankton enjoys blooms and suffers busts simultaneously in neighboring water masses. So seabirds and marine mammals must be able to move and to extemporize in marginal habitat, like their pioneer human counterparts, whalers, and beaver trappers.

From the point of an individual seabird, food is distributed through the oceans as if by lottery, not predictable patterns. When seabirds find a resource, they settle and work it over. Similarly, seabird biologists want to settle and study the situation when they find birds. The combination of following birds at sea, learning what is there at the surface and in the water column where the birds gather, what the birds eat themselves, what they take home to their young, and what local conditions of hydrography are responsible for the location of feeding sites is an obvious plan of research. Consequently, there have been years of frustration while transects and "CTD" stations, "'pre-planned" on assumptions of suitable sampling techniques for homogeneous water masses, were serviced mechanically "to maintain statistical validity." We can all remember steaming past a wild seabird feeding frenzy without even slowing.

Briggs, Dettman, Lewis, and Tyler in "Phalarope feeding in relation to autumn upwelling off California" focused their work on how phalaropes find food. They concluded that visible clues for foraging phalaropes include slicks, color boundaries, and lines of flotsam such as kelp and foam. The best possible conditions were predicted to be downstream of active, stable upwelling centers, where plants have high standing stocks and herbivores such as *Calanus* and omnivors such as *Euphausia* and *Thysanoessa* are abundant. Convergences are required to concentrate preys within dabbling range of the surface. A strong convergence and nutrient upwelling, e.g., off Point Reyes doesn't work without high grazing plankton populations, and abundant plankton off Point Montara didn't work without a convergence. This makes eminently good sense.

George Hunt was able to make effective use of the large NOAA vessels to study the relations between water masses and the distributions of birds at sea. One of his reports is included here (Schneider and Hunt: "A comparison of seabird diets and foraging distribution around the Pribilof Islands, Alaska"). The coarseness of the sampling possible from large ships complements the fine-grained nature of data gathered by Briggs et al. on phalaropes. But, unfortunately for the collection of comparative data, the cost of OCSEAP's concentrating on large vessels was that few comparable data are available from other places. If one is confident that "a system takes on a typical form" then this failing is not important.

The third part of this symposium's proceedings concerns possible impacts of commercial fisheries on seabird populations, by killing seabirds in nets, by culls taken as a consequence of lobbying by fisherman or by reduction in the food supply available to birds. It may be that some

commercial fishing activities will affect the food supplies of seabirds, or will affect the populations of large fish which drive bait fish to the surface and make them available as prey items. We should, however, be wary of assuming any direct correlations a priori. Accepting a unifying principle implies that certain processes have general application throughout the system. In this way "energy flow" could be a universal process, congruent with density-dependent population regulation as conceived by David Lack in his 1954 book. The only factor he reasoned would act in a perfectly density-dependent way is food. Therefore, it could be deduced that any change in food must have an impact on populations that eat that food.

In contrast, it seems that the many biological subsystems in one "ecosystem" probably operate largely independently of the other subsystems. Occasionally one subsystem may interact with another and these interactions become direct and important, but such an occurrence is fortuitous, not deterministic. First example, the populations of seabirds we studied in the Bering Strait region seemed to be limited by the numbers of nesting sites; second example, the major food brought to the murre chicks (*Lumpenus fabricii*) was scarcely represented in fisheries samples; third example, however, the food of both species of puffins, of kittiwakes and of the murres (when feeding themselves) was Sand Lance, a species which might suffer heavily from fisheries depredations. There were several other species, very abundant in fisheries samples, which the seabirds neglected. I believe that systems continue to operate and to be resilient, not because they have mechanisms which return them to a typical form, but because they are so loose and inconsistent, and their elements are so redundant that it is hard for "disturbance" to get a toehold.

In the western Atlantic, Capelin assumes the dubious distinction of Sand Lance in the Bering Strait, that is, being central to the trophic pathways, (cf. Brown and Nettleship in "Capelin and seabirds in the Northwest Atlantic"). I must make one comment on this interesting article which is loaded with information, however. They list the number of breeding adult Herring Gulls in Witless Bay, Newfoundland as 13,700 which I interpret as 6,850 pairs; they list the number of chicks fledged as 9,885, which suggests a breeding success of 1.4 chicks per nest. That would be an extraordinary performance in New England.

Promising ways to address issues of the interactions of fisheries and seabirds are illustrated in the detailed studies from the northeast Atlantic and North Sea and in the northwest Atlantic. Furness in "Seabird-fisheries relationships in the northeast Atlantic and North Sea" reported that Whitefish, Herring, Mackeral and Sand Lance may share interactions among themselves and seabirds. It seems intuitively obvious that this should be so, and economically important. Seabirds may consume 29% of prey stocks within 25 km of nesting sites, but I want to know a lot more about the techniques for estimating the fish stocks before I accept 29% rather than 1/4-1/3. Even so, an important effect should be detectable, even with rather "dirty" techniques.

It is not surprising that all these authors indicate that detailed studies at sea are needed for the species at risk. Data gathered at sea should drive the models and the models should be used to direct attention to needs for fieldwork. It seems pretty ineffectual to have the real world forced into models whose constraints are set by deterministic mathematics and by hidden assumptions such as energy flow as an "ecosystem function." The concept should be relegated to the company of the "unseen hand," "the ether," and "phlogiston."

Bill Drury

TREASURER'S REPORT--1984

Unsurprisingly, costs continue to rise for printing of the Bulletin. Two factors have the greatest impact: our past printer (Humboldt State University) increased their rate about 25% over past years, and the USPS raised their rates again. The costs of printing the Seabird Symposium and the Seabird Group Directory accounted for about one-third of our expenses this year, inflating our yearly expenses above normal and resulting in a net decrease in worth over 1983. No such printing schedule is anticipated for 1985, and our normal modest growth is expected.

The Asilomar Annual Meeting made approximately $3,100 over expenses, the surplus was put in our General Funds. Out interest on savings is quite low. Cash flow problems after printing the Directory and unanticipated delays in incorporation necessitated holding money in low-yield accounts longer than I'd prefer.

Beginning in 1985, PSG will initiate an Endowment Fund of $5,000 to be supplemented by direct donations and Life Memberships. This fund will allow us both long-term planning and flexibility in undertaking projects like the Seabird Symposium and Directory. Contact your Regional Representative or a recent Bulletin for more details.

CARRYOVER from 1983 (Savings: $7,117.15; Checking: $1,913.30)	$ 9,030.45
EXPENSES:	
Bulletin costs (incl. office expenses for Springer and Strauch, postage, printing)	2,705.03
Officer's expenses	339.50
General office expenses	220.67
Asilomar Annual Meeting	10,093.04
Long Beach Annual Meeting, advance to Local Committee	100.00
Dues to I.C.B.P.	100.00
Seabird Symposium Printing	4,000.00
International Seabird Group Directory	1,208.88
PSG T-shirts	432.00
Service charges on accounts	79.11
TOTAL EXPENSES	(19,278.23)
INCOME:	
Dues and sales of back issues	3,634.15
Income from Asilomar Annual Meeting	13,196.73
Interest on savings account	229.84
TOTAL INCOME	17,060.72
END OF YEAR 1984 (Savings: $5,722.03; Checking: $1,090.91)	$ 6,813.94

Decrease in worth over 1983: $2,217.51

Douglas Siegel-Causey

BULLETIN BOARD

Meetings

In late 1984, a meeting was held at the University of Hawaii to discuss the problems associated with plastic pollution in the oceans. The National Academy of Sciences has estimated that each year over 300 million pounds of plastic packaging material and plastic fishing gear, including plastic fish nets, are dumped into the oceans. It was estimated that between 1 and 2 million birds and over 100,000 marine mammals die each year in accidents related to the plastic. Some animals become entangled in nets; others ingest plastic which interferes with assimilation of food and may cause starvation.--New York Times (December 12, 1984)

In November 1984, the Minerals Management Service (MMS) sponsored a workshop on "monitoring Seabird Populations in the Alaska Outer Continental Shelf Region." The proceedings are available from Steve Treacey of MMS (P. O. Box 101159, Anchorage, AK 99510).-Ed Murphy

In February 1985, several government agencies and the National Audubon Society sponsored the "Alaska Bird Conference and Workshop." One day of this meeting was devoted to talks on seabirds. The set of abstracts of presented papers is available from Tom Rothe (Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99502).-Ed Murphy

From 15 to 18 February 1985, The Seabird Group held a conference. Participants represented Northern Europe, South Africa, North America, and the United Kingdom. Presentations concentrated on population studies and monitoring.-The Seabird Group conference program

Azores Tern Survey

An expedition to the Azores was mounted to the Azores in 1984 to census the Roseate and Common Terns as well as Herring Gulls. The expedition was led by Euan Dunn and Gerald Le Grand. Six hundred pairs of Roseate Terns and two thousand pairs each of Common Terns equals that of all of northern Europe. A colony of Madeiran Storm Petrels was found, the first proven breeding record for the Azores.-World Birdwatch (Spring 1985)

Journals for Publication

Both the Colonial Waterbird Group and The Seabird Group invite PSG members to submit articles to their journals. Both journals are fully refereed and have rapid turnaround times. *Colonial Waterbirds* specializes in colonial waterbirds, including seabirds. If you are interested in submitting an article or a note, contact Jim Kushlan (Department of Biological Sciences, East Texas State University, Commerce, Texas 75428). *Seabird* specializes in articles on seabirds. If you are interested in submitting articles, contact M. de L. Brooke, Editor of Seabird, Seabird Group, c/o RSPB, The Lodge, Sandy Beds, SG19 2DL, England).

Neck-colared Sooty and Cory's Shearwaters in Israel

Although Sooty and Cory's Shearwaters are irregular in the Gulf of Aqaba, the Israeli Nature Reserves Authority has caught 10 birds during the last six years. These birds were marked with yellow neck colars and released. If you encounter birds marked in this way, please contact Hadoram Shirihai (Nature Reserves Authority, Birdwatching Center, P. O. Box 774, Elat, Israel).

Earn a Free Year's Membership to PSG--U.K. and Canadian Members

I need help in setting up commercial checking accounts in the U.K. and Canada. PSG members who do not have easy access to U.S. dollars often find it difficult to pay memberships and purchase back issues. These new accounts would allow dues payments in Pounds Sterling and Canadian Dollars. The PSG will repay your travail with the bureaucrats with a free year's membership. If you would like to assist, please contact me. Such a deal!

The following new members have been sponsored by a current PSG member and are welcomed into the PSG:

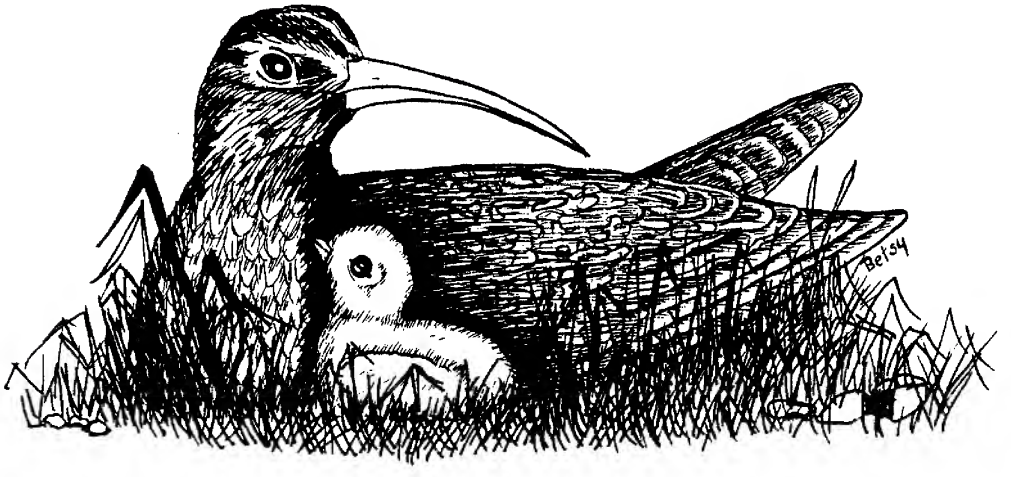
Prof. V. D. Ilyichev
National Ringing Center
Moscow
USSR
(sponsor: D. Siegel-Causey)

Dr. V. A. Zubakin
Insitute of Evolutionary Animal Ecology
Moscow
USSR
(sponsor: J. L. Hand)

Dr. S. P. Kharitonov
Institute of Evolutionary Animal Ecology
Moscow
USSR
(sponsor: D. Siegel-Causey)

Dr. N. M. Litvinenko
Institute Biology and Soil Services
Vladivostok
USSR
(sponsor: J. L. Hand)

The PSG Secretary has a list of other seabird biologists and organizations that would benefit from PSG sponsorship. Contact Tony DeGange for more information.



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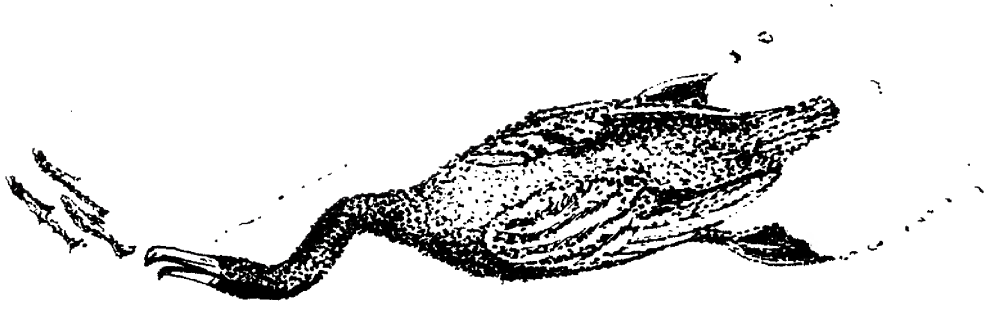

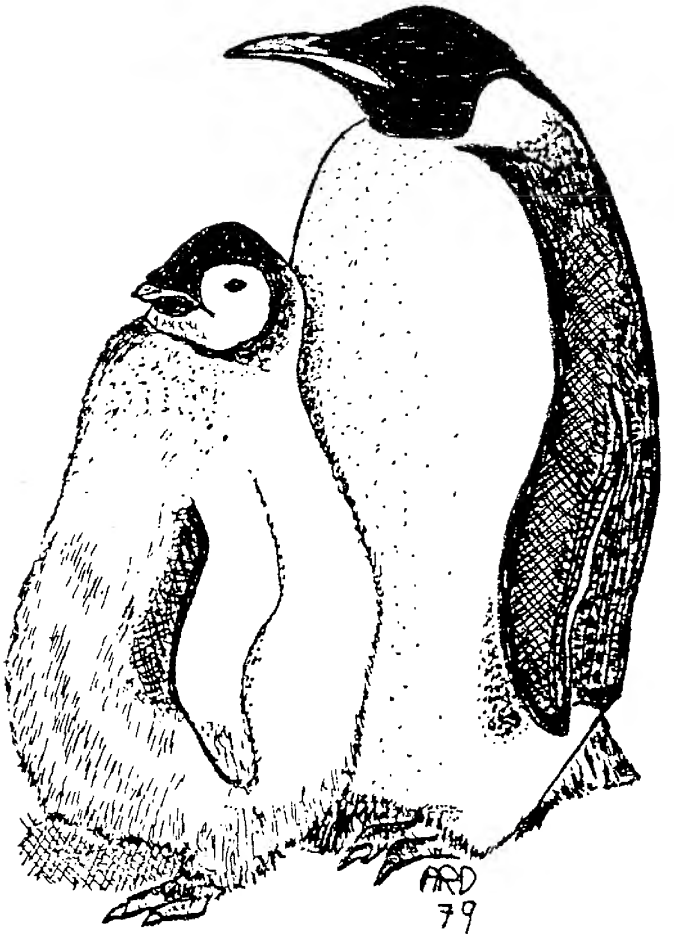
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